

Lithium Battery Cargo and Cabin Fire Safety

Captain Scott Schwartz

Lithium battery fires present a significant fire risk to commercial aviation. Recent accident data has shown that vital aircraft systems can become compromised less than five minutes after the detection of an onboard fire involving lithium batteries. Even if an aircraft is in an ideal position for an emergency landing, pilots need at least 15 minutes to safely land an aircraft from cruise altitude. Given that commercial aircraft operations more than two hours from a suitable airport are common, any fire aboard aircraft is an unacceptable risk, especially one that is beyond the suppression capabilities of onboard systems. Lithium batteries in passenger carry-on baggage, checked baggage, and cargo shipments have all caused fires on aircraft. Even though the FAA Technical Center tests have shown that thermal runaway involving very small numbers of lithium batteries can overwhelm aircraft fire suppression systems, and lead to the loss of an aircraft, there are still no lithium battery quantity limits on cargo containers, compartments, or aircraft. These unmitigated risks have led aircraft manufacturers and regulatory agencies worldwide to call for adequate safety procedures to be developed and implemented before commercial aircraft transport lithium batteries. While several mitigating systems have been developed in recent years, none are required to protect aircraft from lithium battery fires. We advocate for a layered defense system, including packaging, loading, and fire suppression components. There have been very important recent developments at ICAO that we hope will lead to the implementation of a comprehensive and effective transport system for lithium batteries.